

Fig.1

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gene	polymorphism	gene	polymorphism
Angiotensin converting enzyme	I/D in intron 16	Insulin receptor substrate-1	3494G→A (Gly972Arg)
Angiotensin II type I receptor	-535C→T	Interleukin-10	-1082G→A
Angiotensinogen	-6G→A		-819T→C
Apolipoprotein A1	-75G→A		-592A→C
	83C→T	Interleukin-1α	-889C→T
Apolipoprotein B	I/D in signal peptide	Interleukin-1β	-511C→T
Apolipoprotein C-III	-482C→T		3953C→T
	1100C→T	Interleukin-6	-634C→G
Apolipoprotein E	-491A→T		-174G→C
	-219G→T	LDL receptor related protein	766C→T
	3932T→C (Cys112Arg)	Leptin	-1887C→A
	4070C→T (Arg158Cys)	Lipoprotein lipase	280G→A (Asp9Asn)
Apolipoprotein (a)	93C→T		1127A→G (Asn291Ser)
	121G→A	Manganese superoxide dismutase	47C→T (Ala16Val)
	11764A→C (Thr12Pro)		173T→C (Ile58Thr)
ATP-binding cassette transporter 1	-477C→T	Matrix Gla protein	-7G→A
	1051G→A (Arg219Lys)		7158A→G (Thr83Ala)
Atrial natriuretic peptide	664G→A (Val7Met)	Metalloproteinase-1 (collagenase)	-1607G→GG
Atrial natriuretic peptide clearance receptor	-55A→C	Metalloproteinase-12 (macrophage elastase)	-82A→G
β2-adrenergic receptor	46A→G (Arg16Gly)	Methionine synthase	2756A→G (Asp919Gly)
	79C→G (Gln27Glu)	Methylenetetrahydrofolate reductase	677C→T (Ala222Val)
	491C→T (Thr164Ile)	Monocyte chemoattractant protein-1	-2518G→A
β3-adrenergic receptor	190T→C (Trp64Arg)	NADH/NADPH oxidase p22 phox	242C→T (His72Tyr)
β-Fibrinogen	-854G→A	Neuropeptide Y	1128T→C (Leu7Pro)
	-455G→A	Paraoxonase	-107T→C
	148C→T		172A→T (Met55Leu)
	8059G→A (Arg448Lys)		584G→A (Gln192Arg)
CD14 receptor	-260C→T	PECAM1 (CD31)	1454C→G (Leu125Val)

Fig.2

Chemokine receptor 2	190G→A (Val64Ile)	PECAM1 (CD31)	4428G→A (Ser563Asn)
Cholesterol ester transfer protein	1061A→G (Ile405Val)	Peroxisome proliferator-activated receptor-α	696C→G (Leu162Val)
	1163A→G (Asp442Gly)	Peroxisome proliferator-activated receptor -γ2	34C→G (Pro12Ala)
	1200G→A (Arg451Gln)		344C→A (Pro115Gln)
Coagulation factor V	1691G→A (Arg506Gln)	Plasminogen-activator inhibitor-1	-668/4G→5G
Coagulation factor VII	11496G→A (Arg353Glu)	Platelet-activating factor acetylhydrolase	994G→T (Val279Phe)
Coagulation factor XII	46C→T	Prothrombin	20210G→A
Coagulation factor XIII A-subunit	163G→T (Val34Leu)	P-selectin	76666A→C (Thr715Pro)
Connexin 37	1019C→T (Pro319Ser)	Scavenger receptor-BI	4G→A (Gly2Ser)
Endothelial nitric oxide synthase	-786T→C		403G→A (Val135Ile)
	894G→T (Glu298Asp)	Serotonin 2A receptor	102T→C
Endothelin-1	5665G→T (Lys198Asn)	Stromelysin-1	-1171/5A→6A
E-selectin	98G→T	Thrombomodulin	-33G→A
	561A→C (Ser128Arg)		-10GG→TA
Extracellular superoxide dismutase	1839C→T (Leu554Phe)		845G→A (Ala25Thr)
Fatty acid-binding protein 2	5775C→G (Arg213Gly)	Thrombopoietin	2136C→T (Ala455Val)
Fractalkine receptor	2445G→A (Ala54Thr)	Thrombospondin 1	5713A→G
Glycoprotein Ia	84635G→A (Val249Ile)	Thrombospondin 4	2210A→G (Asn700Ser)
	807C→T	Tissue factor pathway inhibitor	1186G→C (Ala387Pro)
	873G→A	Transforming growth factor-β1	874G→A (Val264Met)
Glycoprotein Iba	1648A→G (Lys505Glu)		-509C→T
Glycoprotein IIIa	1018C→T (Thr145Met)	Tumor necrosis factor-α	869T→C (Leu10Pro)
Glycoprotein PC-1	1565T→C (Leu33Pro)		-863C→A
G-protein β3 subunit	97A→C (Lys121Gln)		-850C→T
Hemochromatosis-associated protein	825C→T (splice variant)		-308G→A
Hepatic lipase	845G→A (Cys282Tyr)		-238G→A
	-480C→T	von Willebrand factor	-1234C→T
	-250G→A		-1051G→A

Fig.3

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Gene	SNP	Labels	Primers (5'→3')	Cycles	Probes (5'→3')	Formamide (%)
G protein $\beta 3$ subunit	825C→T	TxR	TCTGGGGCATCAGCTXCG	35		
		FITC	TCTGGGGCATCACGTXTG			
		Biotin	GAATAGTAGGGGCCACTGA			
Apolipoprotein C-III	1100C→T	Biotin	CCTTCTCAGCTTCATGCAGG	35	CAGCTTCATGCAGGGCTACA	35
		Biotin	GTCTTGGTGGCGTGCTTCA			
		FITC	GCAGTTTATTAAAGATGAGGXCG			
Chemokine receptor 2	190G→A	TxR	TTGCAGTTTATTAAAGATGAGGXTG	40		
		Biotin	GGTGCTCCCTGTCATAAATTGGA			
		FITC	GAGTCTACCTGTTTACTATCAAXAA			
Glycoprotein Ia	1648A→G	TxR	GAGTCTACCTGTTTACTATCAAXGA	40		
		Biotin	ACCAGTACTAAAGCAAATTAAACT			
		FITC	TCTACATGGCCCTGTCTTXGT			
Tumor necrosis factor- $\alpha$	-850C→T	Biotin	CTCTACATGGCCCTGTCTTXAT	35	ACATGGCCCTGTCTTXGTTAAG	30
		FITC	CTCTACATGGCCCTGTCTTTAT			
		TxR	CCCCATCCTCCCTGCTXCG			
Tumor necrosis factor- $\alpha$	-238G→A	TxR	CCCCATCCTCCCTGCTXIG	40		
		Biotin	AGTCAGTGGCCCAAGAGACC			
		FITC	GGGCCCTGCACCTCCXGG			
Insulin receptor substrate-1	3494G→A	Biotin	GGGCCCTGCACCTCCXAG	40	CACCTCCXGGGGCTGCTAG	35
		FITC	GGGCCCTGCACCTCCXAG			
		TxR	GGGTAGGCCCTGCAAAATGCTA			
Glycoprotein Ib $\alpha$	1018C→T	Biotin	CCCAGGGCTCCTGXCG	40		
		FITC	CCCAGGGCTCCTGXIG			
		TxR	TGAGCTTCTCCAGCTTGGGTG			

**Fig.4**

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Gene	SNP	Gene	SNP
<i>Men</i>			
Angiotensinogen	-6G→A	Women	
Apolipoprotein C-III	-482C→T	Apolipoprotein C-III	-482C→T
Apolipoprotein C-III	1100C→T	Apolipoprotein E	3932T→C
Apolipoprotein E	-219G→T	Apolipoprotein E	4070C→T
Apolipoprotein E	4070C→T	ATP-binding cassette transporter 1	1051G→A
Chemokine receptor 2	190G→A	CD14 receptor	-260C→T
Connexin 37	1019C→T	Connexin 37	1019C→T
Endothelial nitric oxide synthase	-786T→C	E-selectin	561A→C
G protein β3 subunit	825C→T	Endothelial nitric oxide synthase	-786T→C
Glycoprotein Ia	1648A→G	Endothelin-1	5665G→T
Interleukin-10	-819T→C	Fatty acid-binding protein 2	2445G→A
Interleukin-10	-592A→C	Glycoprotein Ibα	1018C→T
NADH/NADPH oxidase p22 phox	242C→T	Insulin receptor substrate-1	3494G→A
Platelet-activating factor acetylhydrolase	994G→T	Interleukin-6	-634C→G
Thrombomodulin	2136C→T	Paraoxonase	584G→A
Thrombopoietin	5713A→G	Plasminogen-activator inhibitor-1	-668/4G→5G
Thrombospondin 4	1186G→C	Stromelysin-1	-1171/5A→6A
Transforming growth factor-β1	869T→C	Tumor necrosis factor-α	-850C→T
Tumor necrosis factor-α	-863C→A	Tumor necrosis factor-α	-238G→A

Fig.5

	Men (n = 1107)		Women (n = 833)	
	Controls (n = 533)	Subjects with hypertension (n = 574)	Controls (n = 340)	Subjects with hypertension (n = 493)
Age (years)	56.3 ± 11.0	59.6 ± 10.1*1	56.8 ± 11.4	62.6 ± 10.5*1
Body mass index (kg/m <sup>2</sup> )	23.2 ± 2.7	23.9 ± 2.7*2	22.2 ± 2.9	23.6 ± 3.4*1
Smoking (%)	58.5	47.6†	10.6	8.5
Systolic blood pressure (mmHg)	121 ± 13	161 ± 27*1	118 ± 15	164 ± 26*1
Diastolic blood pressure (mmHg)	72 ± 10	92 ± 16*1	68 ± 10	90 ± 16*1
Diabetes mellitus (%)	15.6	19.5	12.1	16.6
Hypercholesterolemia (%)	29.8	34.7	41.8	54.6*2
Hyperuricemia (%)	13.9	21.1*3	6.5	13.0*3
Serum creatinine (μmol/L)	81.4 ± 19.5	90.2 ± 39.8*1	62.8 ± 16.8	64.6 ± 30.1

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**Fig.6**

Gene	SNP	Dominant		Recessive		Additive	
		P	OR (95% CI)	P	OR (95% CI)	P	OR (95% CI)
<i>Men</i>							
Chemokine receptor 2	190G→A	0.0471	1.3 (1.0–1.6)	<b>0.0151</b>	1.8 (1.1–2.8)	0.0077	1.9 (1.2–3.0)
G protein β3 subunit	825C→T	<b>0.0235</b>	1.4 (1.0–1.8)	0.0342	1.4 (1.0–1.8)	0.0075	1.6 (1.1–2.3)
Glycoprotein Ia	1648A→G	0.7058		<b>0.0266</b>	0.6 (0.4–0.9)	0.7037	
Apolipoprotein C-III	1100C→T	0.5137		<b>0.0373</b>	0.8 (0.6–1.0)	0.1592	
<i>Women</i>							
Tumor necrosis factor-α	-238G→A	<b>0.0054</b>	0.3 (0.1–0.7)	0.6903		0.0349	0.3 (0.2–0.9)
Tumor necrosis factor-α	-850C→T	0.3200		<b>0.0354</b>	5.0 (1.4–32.2)	0.0336	5.1 (1.4–32.9)
Insulin receptor substrate-1	3494G→A	<b>0.0462</b>	2.5 (1.1–6.6)	0.8127		0.0631	
Glycoprotein Ibα	1018C→T	<b>0.0484</b>	0.7 (0.5–1.0)	0.3777		0.0215	0.6 (0.4–0.9)

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**Fig.7**

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SNP		Genotype distribution (%)			
Gene		Controls		Subjects with hypertension	
Men					
Chemokine receptor 2	190G→A	GG (54.6)	GA (38.9)	AA (6.5)	GG (49.7) GA (40.1) AA (10.1)
G protein β3 subunit	825C→T	CC (29.9)	CT (48.9)	TT (21.1)	CC (24.0) CT (50.7) TT (25.3)
Glycoprotein Ia	1648A→G	AA (0.0)	AG (6.6)	GG (93.4)	AA (0.4) AG (9.3) GG (90.3)
Apolipoprotein C-III	1100C→T	CC (15.1)	CT (44.6)	TT (40.3)	CC (16.7) CT (49.3) TT (34.1)
Women					
Tumor necrosis factor-α	-238G→A	GG (94.6)	GA (4.5)	AA (0.9)	GG (97.3) GA (2.7) AA (0.0)
Tumor necrosis factor-α	-850C→T	CC (75.3)	CT (24.1)	TT (0.6)	CC (71.9) CT (24.5) TT (3.6)
Insulin receptor substrate-1	3494G→A	GG (97.9)	GA (2.1)	AA (0.0)	GG (95.2) GA (4.4) AA (0.4)
Glycoprotein Ibα	1018C→T	CC (74.5)	CT (23.7)	TT (1.8)	CC (79.7) CT (18.4) TT (1.9)

Fig.8

Gene	Chromosomal locus	SNP	Genetic model	Odds ratio	95% CI
<i>Men</i>					
Glycoprotein Ia	5q23-q31	1648A→G	GG versus AA + AG	0.56	0.35–0.91
Chemokine receptor 2	3p21	190G→A	AA versus GG + GA	1.65	1.04–2.60
Apolipoprotein C-III	11q23	1100C→T	TT versus CC + CT	0.73	0.57–0.95
G protein β3 subunit	12p13	825C→T	CT + TT versus CC	1.32	0.99–1.74
<i>Women</i>					
Tumor necrosis factor-α	6p21.3	-850C→T	TT versus CC + CT	4.63	1.02–20.93
Tumor necrosis factor-α	6p21.3	-238G→A	GA + AA versus GG	0.28	0.12–0.66
Insulin receptor substrate-1	2q36	3494G→A	GA + AA versus GG	2.10	0.83–5.30
Glycoprotein Ibα	22q11.2	1018C→T	CT + TT versus CC	0.74	0.51–1.09



Fig.9

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Glycoprotein Ia (0 = AA = AG, 1 = GG)	Chemokine receptor 2 (0 = GG = GA, 1 = AA)	Apolipoprotein C-III (0 = CC = CT, 1 = TT)	G protein $\beta$ 3 subunit (0 = CC, 1 = CT = TT)	Odds ratio
0	1	0	1	5.34
0	1	0	0	4.05
0	1	1	1	3.90
0	1	1	0	2.95
0	0	0	1	3.24
0	0	0	0	2.45
0	0	1	1	2.36
0	0	1	0	1.79
1	1	0	1	2.98
1	1	0	0	2.26
1	1	1	1	2.18
1	1	1	0	1.65
1	0	0	1	1.81
1	0	0	0	1.37
1	0	1	1	1.32
1	0	1	0	1.00

Fig.10

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Tumor necrosis factor- $\alpha$ (0 = CC, 1 = TT)	Tumor necrosis factor- $\alpha$ (0 = GG, 1 = GA = AA)	Insulin receptor substrate-1 (0 = GG, 1 = GA = AA)	Glycoprotein Iba (0 = CC, 1 = CT = TT)	Odds ratio
1	0	1	0	46.86
1	0	1	1	34.71
1	0	0	0	22.31
1	0	0	1	16.53
1	1	1	0	13.13
1	1	1	1	9.72
1	1	0	0	6.25
1	1	0	1	4.63
0	0	1	0	10.12
0	0	1	1	7.50
0	0	0	0	4.82
0	0	0	1	3.57
0	1	1	0	2.84
0	1	1	1	2.10
0	1	0	0	1.35
0	1	0	1	1.00

Fig.11

